

# EMEL POKAM KAKE

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## CONTACT INFORMATION

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## PhD THESIS

Title: « Three Essays in Environmental Economics and Microeconomic Theory »

Advisor: Deniz Dizdar

Co-advisor: Michel Poitevin

Date of completion: May 2021 (Expected)

**FIELDS** Game Theory, Natural Resource and Environmental Economics,  
Microeconomics, Industrial Organization.

## EDUCATION

2015-present: PhD Candidate in Economics, University of Montreal, Canada.

2011-2014: MSc in Statistics and Economics (2nd ranked), Sub-regional Institute of Statistics and Applied Economics (ISSEA), Yaounde, Cameroon.

2010-2011: Master 1 in Mathematics option Algebra, University of Yaounde I, Cameroon.

2009-2010: BSc in Mathematics, University of Yaounde I, Cameroon.

2007-2010: Diploma of Professor of Secondary Education 1<sup>st</sup> Grade, Higher Teacher Training College (ENS), Cameroon.

## RESEARCH

### Completed Papers

#### **The Strategic Effects of a Bilateral Border Tax Adjustment in an Emissions Taxation Game (Job Market Paper)**

In this paper, we analyze the effect of bilateral border tax adjustments (BTA) on carbon taxes in a non-cooperative game between two symmetric open countries trading in an oligopolistic framework with cross-border pollution. We also contrast the results of this BTA game with those of two benchmarks (the non-cooperative game without BTA and the efficient solution). We note that when countries suffer little from pollution, only symmetric equilibria exist. By contrast, if countries suffer sufficiently from pollution, only asymmetric equilibria exist. Carbon taxes in symmetric equilibria are higher than the efficient taxes, while the opposite is true for the asymmetric

equilibria. In all cases of interest, the total welfare in the equilibrium of the non-cooperative game with BTA is higher than that in the equilibrium of the non-cooperative game without BTA. If the cost of pollution is sufficiently low, there is a level of BTA such that non cooperative equilibrium taxes are efficient. Finally, in the case where the countries suffer a lot from pollution, the optimal level of BTA can be partial or full depending on the parameters of the model.

### **Trade of an Exhaustible Resource with Multilateral Externality**

This paper analyzes strategic interactions between a resource cartel exporting a non-renewable stock pollutant and two heterogeneous importing countries, who want to mitigate pollution damages. The importing countries differ with respect to market size and with respect to how strongly they are affected by the (global) stock of pollution. The countries non cooperatively set emissions taxes and the exporting cartel sets its producer price. Using open loop Nash equilibrium, we obtain explicit solutions for the time paths of the carbon taxes, the producer price and the stock of pollution. The asymmetries of countries play an important role in the determination of the welfare of each country, the time paths of the extraction of the natural resource, the other control variables of the model and in the decision of importing countries to cooperate in fighting against pollution. We compare the non-cooperative equilibrium to two benchmarks (the cooperative equilibrium and the social optimum).

### **Work in Progress**

#### **Transboundary Pollution and Border Tax Adjustment**

This paper studies a non-cooperative transboundary pollution game between three asymmetric countries setting carbon taxes in the presence of a border tax adjustment (BTA) and with imperfect competition in the international polluting goods market. Countries are asymmetric with respect to their willingness to pay for reductions of global emissions. In our baseline model, only the most affected country imposes a BTA. We show that, unlike in the existing literature using two-countries models, the most affected country very generally prefers using a full BTA, a tariff that fully adjusts for the differences between its own carbon tax and those in other countries, to a partial BTA. Regardless of the size of the BTA, carbon taxes are strategic substitutes. We also show to what extent a BTA helps to deter unilateral deviations from a cooperative solution that maximizes global welfare. Finally, we also study the case where several countries can choose a BTA (and carbon taxes) non-cooperatively to shed light on equilibrium behavior and the effectiveness of BTA in such a context.

## **TEACHING EXPERIENCE**

### **Instructor**

Introduction to Economics, BSc, UdeM, Fall 2020

Mathematics for Economic Analysis, BSc, UdeM, Fall 2018, Winter 2019, Fall 2019

Data analysis, BSc, UdeM, Winter 2018

### **Teaching Assistant**

Microeconomics, MSc, UdeM, Fall 2020

Introduction to Game Theory, BSc, UdeM, Winter, 2018, 2019, 2020

Mathematics for Economic Analysis, BSc, UdeM, Fall 2017, Summer 2019, Fall 2019

Microeconomic Theory, BSc, UdeM, Fall 2018

Introduction to Industrial Organization, BSc, UdeM, Winter 2019

Economics of Organization, BSc, UdeM, Winter 2019

Econometrics, BSc, UdeM, Winter 2018

Introduction to Microeconomics, BSc, UdeM, Fall 2016

## **PROFESSIONAL EXPERIENCE & EXPERIENCE IN STATISTICS**

- 2015: Economist, Ministry of Economy, Cameroon.
- 2014: Team manager for the survey: « Household Behavior and Environmental Protection in Urban Areas: Case of the City of Yaounde », ISSEA, Cameroon.
- 2014: Assistant supervisor for the survey: « Household Behavior and Environmental Protection in Urban Areas: Case of the City of Yaounde », ISSEA, Cameroon.
- 2013: Internship in the risk department, Afriland First Bank, Cameroon.

## **CONFERENCE AND SEMINAR PARTICIPATIONS**

- Fall 2019: 2nd Green-econ Springer school in Environmental Economics, speaker, Aix-Marseille school of Economics, France.
- Fall 2017: Montreal Environment and Resource Economics Workshop 2017-2018, speaker, Montreal, Canada.

## **FELLOWSHIPS**

- 2015-2021: PhD Fellowship, Department of Economics and CIREQ, University of Montreal, Canada.
- 2015-2017: Tuition-fee Waiver Scholarship, School of Graduate Studies, University of Montreal, Canada.
- 2011-2014: MSc Fellowship, Government of Cameroon.

**LANGUAGES** French (native), English

**CITIZENSHIP** Cameroon

**GENDER** Female

## **MISCELLANEOUS**

software skills: R, Stata, Eviews, Mathematica, Matlab, Microsoft Office.

## **REFERENCES**

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